

MODERN MONITORING SYSTEMS OF ELECTRIC POWER LINES

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During the use of electricity transmission lines, some malfunctions may arise that require the timely identification and implementation of the necessary actions for their timely elimination. Therefore, the control of energy objects, which requires the use of modern effective information and measuring technologies, which in turn depends on the technical state of the development of measuring complexes and systems, has become significant.

For example, various monitoring systems for power air lines monitoring are known, which provide the operator with information about the current technical state of power supply networks. The monitoring system consists of a network of measuring blocks connected through the communication link with the equipment at the dispatch center. Dispatcher stations are located at nodal points of electricity distribution networks. In them, in the majority, SCADA systems are used, which provide processing of data received from measuring blocks.

The measuring unit includes: a group of sensors, a processor module, a data transmission system, an autonomous power module. In this case, different types of sensors can be used. The sensors monitor the following parameters: current, temperature, wire tension, icing, etc. For data transmission in the monitoring systems of transmission lines, wireless communication channels (GSM-radio modems) are mainly used.

One of the first monitoring systems was the CAT-1 system, which provides real-time monitoring of power lines. The system works at the direct contact of the diagnostic module with the electric wires of the electric transmission lines, when the main module of the system is mounted on the supports of the electricity transmission lines. The noncontact system of sensors of monitoring, that contains noncontact measuring devices of current and temperature on a base the OTML-modules that is assembled on high-voltage wires, can be used also.

The system of monitoring and diagnostics of the technical state of the air lines DiLin is used for monitoring long and branched networks and is intended for the complex analysis of the work of the ways of transit of electric energy on the basis of prediction of change of the technical state of the air lines.

Also, monitoring of the technical state of electricity transmission lines gets development by means of mobile computer-assisted informatively measuring checking systems, with the use of pilotless aviation complexes.

Their application ensures the rapid remote monitoring of power transmission lines in hard-to-reach and dangerous locations.

Thus, the introduction of most modern information controlling and monitoring systems for transmission lines will improve their technical state. For example, in the Kharkiv region, pilotless aircrafts already monitor the technical state of transmission lines.